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TITLE: A SOLUTION OF METAL-POLYMER CHELATE(S) AND APPLICATIONS THEREOF

Amendment C: CLAIM AMENDMENTS

Claims 1 - 41 (canceled).

1. (canceled) A solution of metal-polymer chelates(s) for static bio-carrier, containing at least one metal-polymer chelates for static bio-carrier, the solution for static bio-carrier comprising by weight the following composition percentage:

a. Main skeleton of the bio-carrier:

9950.87~ 0.00001 percent water;

0.00001~ 19.89999 percent hydroxyl group bearing compounds polymers, including at least one carbohydrate molecule;

0.00001 to 20 percent metal salts, including at least one metal ion;

b. Two functional groups which tend to the opposite sides of the skeleton:

0.01~40 percent carboxyl group bearing molecules, including at least one carboxylic acid;

0.00001 ~ 20 percent amino group bearing molecules, including at least one ammonia; and

c. The structure of the well-mixing chelates is tend to chain-form which contains

positive and minus polar functional groups beside it, the chelates can mix well with bio-protein:

a trace percent of biological proteins comprising biological molecules, whereby the metal-polymer chelates(s) solution for static bio-carrier is capable of assisting in a fermentation to preserve process, the form of the bio-carrier being selected from a gaseous state, powder, metal(s) of nanometer size, inorganic, organic/inorganic, fluid, semi-fluid, conductor(s), semiconductor(s), thin-film(s), fiber(s), chip(s), cells and bio-tissue(s).

2. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, further comprising;

including at least one protein amino acid.

3. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, further comprising;

soluble carbohydrate molecules, including at least one monosaccharide bimolecules of monosaccharide derivatives.

4. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, further comprising;

including at least one alkali.

5. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the metal salts are selected from a group consisting of beryllium, magnesium, calcium, strontium, barium, radium, nickel, chromium, lead, copper, iron, zinc, titanium, manganese, cobalt, silver, gold, platinum, palladium, cadmium, lithium, rubidium, cesium, mercury, tin, zirconium, aluminum, thallium, antimony, bismuth, germanium, gallium, molybdenum, tungsten, yttrium, scandium, rhodium, iridium, technetium, osmium, ruthenium, rhenium, vanadium, and indium.

6. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the carboxyl group bearing molecules are selected from a group consisting of monocarboxylic acid, dicarboxylic acid, tricarboxylic acid, acetic acid, L-ascorbate, 2-Hydroxybenzoic acid, methanoic acid, propionic acid, propanedioic acid, 2-hydroxypropanoic acid, hydroxybutanedioic acid, butanedioic acid, hexanedioic acid, cis-butendioic acid, trans-butendioic acid, ethanedioic acid, dodecanoic acid, 2,3-dihydrobutanedioic acid, humic acid, nitrified humic acid, fatty acid, opines in a plant, carboxyl acid fiber, and carboxyl resin.

7. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the hydroxyl group bearing compounds are selected from a group consisting of sucrose, maltose, lactose, trehalose, disaccharide molecules, monosaccharide molecules, chitosan, degraded oils, seaweed cell wall (without adding a metal salt), unhusked rice (without adding a metal salt), cytokinin-O-glucosides, amino group containing polyvinyl alcohol, polyvinyl alcohol, humic acid, nitrified humic acid, peat, hydroxypropylmethyl cellulose, and mixture of oil and sugar.

8. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelate(s) after liquid-solid separation processing produces the metal-polymer chelate, the metal-polymer chelates being selected from a group consisting of polymer bridging agent, inorganic polymer carrier, inorganic and organic bridge inorganic polymer, nano inorganic polymer, plant fiber, carboxyl acid fiber, modification having carboxyl acid fiber, carboxyl resin, amino resin, inorganic matter, polylysine, and aminosilane.

9. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelates(s) further comprises a moisture absorbent combined with the metal-polymer chelates.

10. (canceled) The solution of metal-polymer chelates(s) of claim 8 for static bio-carrier, wherein the polymer bridging agent is comprised of linear polymers.

11. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the biological proteins bearing biological molecules are selected from a group consisting of a protein enzyme, a bacterium, and a cell.

12. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelates(s) further comprises a silicic acid bearing molecule.

13. (canceled) The solution of metal-polymer chelates(s) of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelates(s) further comprises a clay for use in a nanoindustrial application.

14. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, wherein the solution of metal-polymer chelates(s) further comprises a plastic polymer for use in a nano plastic industry application.

15. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is being used for in an oxidation process to produce oxygen anions.

16. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used for a condensation, including at least one oxidizing condensation.

17. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used in one of hydroxypropylmethyl cellulose mimic of chitosan, and monosaccharide mimic of glucosamine.

18. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static

bio-carrier, in which the solution is being used in the cultivation and purification of the biological protein bearing biological molecules and their metabolites.

19. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used in a metal enzyme biocatalyst.

20. (canceled) A method of using the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used in a disinfectant.

21. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, for fermentation in which the solution is used in a biological protein bearing biological molecules culture medium preservation system.

22. (canceled) A method of using the solution of metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used for dietary treatments and for health care applications.

23. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used for the production of chemical components of a plant.

24. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used for duplication of genes and carriers.

25. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used in a nano filtration system.

26. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used for the production of a nano material.

27. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used for one of the nano inorganic matter and nano ceramic and

nano plastic and nano textile industries.

28. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier fermentation, in which the solution is used in one of the manufacture of biological liquid crystals and biological semiconductors and biochips.

29. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used for biological batteries.

30. (canceled) A method of using the metal-polymer chelates(s) solution of claim 1 for static bio-carrier, in which the solution is used for processing an oil product, including at least one solvent liquid.

31. (canceled) The solution of metal-polymer cholate(s) of claims 2, wherein the metal salt is one or more monovalent, bivalent, or trivalent metal salts and the metal salt is a beryllium, magnesium, calcium, strontium, barium, radium, nickel, chromium, lead, copper, iron, zinc, titanium, manganese, cobalt, silver, gold, platinum, palladium, cadmium, lithium, rubidium, cesium, mercury, tin, zirconium, aluminum, thallium, antimony, bismuth, germanium, gallium, molybdenum, tungsten, yttrium, scandium, rhodium, iridium, technetium, osmium, ruthenium, rhenium, vanadium, indium, lanthanum and actinium series metal salt.

32. (canceled) The solution of metal-polymer cholate(s) of claims 3, wherein the metal salt is one or more monovalent, bivalent, or trivalent metal salts and the metal salt is a beryllium, magnesium, calcium, strontium, barium, radium, nickel, chromium, lead, copper, iron, zinc, titanium, manganese, cobalt, silver, gold, platinum, palladium, cadmium, lithium, rubidium, cesium, mercury, tin, zirconium, aluminum, thallium, antimony, bismuth, germanium, gallium, molybdenum, tungsten, yttrium, scandium, rhodium, iridium, technetium, osmium, ruthenium, rhenium, vanadium,

indium, lanthanum and actinium series metal salt.

33. (canceled) The solution of metal-polymer cholate(s) of claims 4, wherein the metal salt is one or more monovalent, bivalent, or trivalent metal salts and the metal salt is a beryllium, magnesium, calcium, strontium, barium, radium, nickel, chromium, lead, copper, iron, zinc, titanium, manganese, cobalt, silver, gold, platinum, palladium, cadmium, lithium, rubidium, cesium, mercury, tin, zirconium,- aluminum, thallium, antimony, bismuth, germanium, gallium, molybdenum, tungsten, yttrium, scandium, rhodium, iridium, technetium, osmium, ruthenium, rhenium, vanadium, indium, lanthanum and actinium series metal salt.

34. (canceled) The solution of metal-polymer cholate(s) of claims 2, wherein the number of R-COOH is equal to or greater then one, and the R is an alkyl radical or an alkyl matter, and the R-COOH is monocarboxylic acid, dicarboxylic acid, tricarboxylic acid, acetic acid, citric acid, vitamin C, salicylic acid, ethylene glycol, formic acid, propionic acid, malonic acid, lactic acid, malic acid, succinic acid, adipic acid, maleic acid, fumaric acid, ortho acid, oxalic acid, lauric acid, tartaric acid, lycium acid, humic acid, nitrified humic acid, fatty acid, opines in a plant, carboxyl acid fiber, and carboxyl resin such as Amberlite IRC-50.

35. (canceled) The solution of metal-polymer cholate(s) of claims 3, wherein the number of R-COOH is equal to or greater then one, and the R is an alkyl radical or an alkyl matter, and the R-COOH is monocarboxylic acid, dicarboxylic acid, tricarboxylic acid, acetic acid, citric acid, vitamin C, salicylic acid, ethylene glycol, formic acid, propionic acid, malonic acid, lactic acid, malic acid, succinic acid, adipic acid, maleic acid, fumaric acid, ortho acid, oxalic acid, lauric acid, tartaric acid, lycium acid, humic acid, nitrified humic acid, fatty acid, opines in a plant, carboxyl acid fiber, and carboxyl resin such as Amberlite IRC-50.

36. (canceled) The solution of metal-polymer cholate(s) of claims 4, wherein the number of R-COOH is equal to or greater than one, and the R is an alkyl radical or an alkyl matter, and the R-COOH is monocarboxylic acid, dicarboxylic acid, tricarboxylic acid, acetic acid, citric acid, vitamin C, salicylic acid, ethylene glycol, formic acid, propionic acid, malonic acid, lactic acid, malic acid, succinic acid, adipic acid, maleic acid, fumaric acid, ortho acid, oxalic acid, lauric acid, tartaric acid, lycium acid, humic acid, nitrified humic acid, fatty acid, opines in a plant, carboxyl acid fiber, and carboxyl resin such as Amberlite IRC-50.

37. (canceled) The solution of metal-polymer cholate(s) of claims 2, wherein the carbohydrate molecule and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymer is one or more carbohydrate molecule and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymer selected from the collection of sucrose, maltose, lactose, rechalose; disaccharide group, monosaccharide group (including glucosamine), chitosan, degraded oils, seaweed cell wall (containing calcium without adding a metal salt), cereal such as an unhusked rice (containing calcium without adding a metal salt), cytokinin-O-glucosides including monosaccharide bimolecules or polyvinyl alcohol together with ammonia (or amine) matter or separate polyvinyl alcohol, or humic acid together with ammonia (or amine) matter without requiring a dissolution of acid, nitrified humic acid, peat, separate humic acid, nitrified humic acid, peat, or amino polyvinyl alcohol, or 0.1-6% of hydroxypropylmethyl cellulose (HPMC) and 1-4% of chitosan, or 0.1-6% of hydroxypropylmethyl cellulose (HPMC) and 1-4% artificial synthesized chitosan, or hydroxypropylmethyl cellulose (HPMC) together with ammonia (or amine) matter, or hydroxypropylmethyl cellulose (HPMC), or hydroxyl or hydroxyl and amino and/or carboxyl and/or carbohydrate polymer or/and oil or/and sugar mixed with each other.

38. (canceled) The solution of metal-polymer cholate(s) of claims 3, wherein the carbohydrate molecule and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymer is one or more carbohydrate molecule and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymer selected from the collection of sucrose, maltose, lactose, rechalose; disaccharide group, monosaccharide group (including glucosamine), chitosan, degraded oils, seaweed cell wall (containing calcium without adding a metal salt), cereal such as an unhusked rice (containing calcium without adding a metal salt), cytokinin-O-glucosides including monosaccharide bimolecules or polyvinyl alcohol together with ammonia (or amine) matter or separate polyvinyl alcohol, or humic acid together with ammonia (or amine) matter without requiring a dissolution of acid, nitrified humic acid, peat, separate humic acid, nitrified humic acid, peat, or amino polyvinyl alcohol, or 0.1-6% of hydroxypropylmethyl cellulose (HPMC) and 1-4% of chitosan, or 0.1-6% of hydroxypropylmethyl cellulose (HPMC) and 1-4% artificial synthesized chitosan, or hydroxypropylmethyl cellulose (HPMC), or hydroxyl or hydroxyl and amino and/or carboxyl and/or carbohydrate polymer or/and oil or/and sugar mixed with each other.

39. (canceled) The solution of metal-polymer cholate(s) of claims 4, wherein the carbohydrate molecule and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymer is one or more carbohydrate molecule and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymer selected from the collection of sucrose, maltose, lactose, rechalose; disaccharide group, monosaccharide group (including glucosamine), chitosan, degraded oils, seaweed cell wall (containing calcium without adding a metal salt), cereal such as an un husked rice (containing calcium without adding a metal salt), cytokinin-O-glucosides including monosaccharide

bimolecules or polyvinyl alcohol together with ammonia (or amine) matter or separate polyvinyl alcohol, or humic acid together with ammonia (or amine) matter without requiring a dissolution of acid, nitrified humic acid, peat, separate humic acid, nitrified humic acid, peat, or amino polyvinyl alcohol, or 0.1-6% of hydroxypropylmethyl cellulose (HPMC).and 1-4% of chitosan, or 0.1-6% of hydroxypropylmethyl cellulose (HPMC) and 1-4% artificial synthesized chitosan, or hydroxypropylmethyl cellulose (HPMC), or hydroxyl or hydroxyl and amino and/or carboxyl and/or carbohydrate polymer or/and oil or/and sugar mixed with each other.

40. (canceled) The solution of metal-polymer cholate(s) of claims 9, wherein the polymer bridging agent or hybrid moisture absorbent is polyvinylpyrrolidone (PVP).

41. (canceled) A method of using the metal-polymer chelates(s) solution of claim 8 for static bio-carrier, wherein the metal-polymer chelates after purification processing produces at least one substance, the substance being selected from the group consisting of amino metal compound, an amino metal polymer, an amino nano metal polymer, an amino nano metal compound, a nano metal polymer, a nano metal compound, an amino biological protein bearing biological molecules, and a pure biological protein bearing biological molecules.

42. (new) A solution of metal-polymer chelates for immobilization of a bio-carrier containing at least one metal-polymer chelate, the solution for assisting in a fermentation preserving process, the solution comprising by weight:

a bio-carrier skeleton having a 0.1 -99.87 percent water, 0.01 - 19.8999 percent hydroxyl group bearing polymers having at least one carbohydrate molecule, and 0.0001 to 20 percent of metal salt having at least one metal ion;

carboxyl and amino groups combined with said bio-carrier skeleton, the carboxyl and amino groups comprising 0.01 - 40 percent of a carboxyl group bearing molecules having at least one carboxylic acid, and 0.0001 - 20 percent of an amino group bearing molecules having at least one ammonia; and

a mixture of the chelates forming a chain which contains positive and negative polar functional groups, the chelates mixed with a trace percent of biological proteins having biological molecules, the bio-carrier being selected from the group consisting of gaseous state, a powder, metal of nanometer size, an inorganic, an organic/inorganic, a fluid, a semi-fluid, a conductor, a semiconductor, a thin-film, a fiber, a chip, a cell and bio-tissue.

43. (new) The solution of metal-polymer chelates of Claim 42, further comprising:

at least one protein dissolved with an electric potential suitable for the protein.

44. (new) The solution of metal-polymer chelates of Claim 42, further comprising:

soluble carbohydrate molecules having at least one monosaccharide bimolecule of monosaccharide derivatives.

45. (new) The solution of metal-polymer chelates of Claim 42, further comprising;

at least one alkali.

46. (new) The solution of metal-polymer chelates of Claim 42, wherein the metal salts are selected from a group consisting of beryllium, magnesium, calcium, strontium, barium, radium, nickel, chromium, lead, copper, iron, zinc, titanium, manganese, cobalt, silver, gold, platinum, palladium, cadmium, lithium, rubidium, cesium, mercury, tin, zirconium, aluminum, thallium, antimony, bismuth, germanium, gallium, molybdenum, tungsten, yttrium, scandium, rhodium, iridium, technetium, osmium, ruthenium, rhenium, vanadium, and indium.

47. (new) The solution of metal-polymer chelates of Claim 42, wherein the carboxyl group bearing molecules are selected from a group consisting of monocarboxylic acid, dicarboxylic acid, tricarboxylic acid, acetic acid, L-ascorbate, 2-hydroxybenzoic acid, methanoic acid, propionic acid, propanedioic acid, 2-hydroxypropanoic acid, hydroxybutanedioic acid, butanedioic acid, hexanedioic acid, cis-butendioic acid, trans-butendioic acid, ethanedioic acid, dodecanoic acid, 2,3-dihydrobutanedioic acid, humic acid, nitrified humic acid, fatty acid, opines in a plant, carboxyl acid fiber, and carboxyl resin.

48. (new) The solution of metal-polymer chelates of Claim 42, wherein the hydroxyl group bearing compounds are selected from a group consisting of sucrose, maltose, lactose, trehalose, disaccharide molecules, monosaccharide molecules, chitosan, degraded oils, seaweed cell wall (without adding a metal salt), unhusked rice (without adding a metal salt), cytokinin-O-glucosides, amino group containing polyvinyl alcohol, polyvinyl alcohol, humic acid, nitrified humic acid, peat, hydroxypropylmethyl cellulose, and a mixture of oil and sugar.

49. (new) The solution of metal-polymer chelates of Claim 42, the metal-polymer chelates being selected from a group consisting of polymer bridging agent, inorganic polymer carrier, inorganic and organic bridge polymer, nano inorganic polymer, plant fiber, carboxyl acid fiber, modification having carboxyl acid fiber, carboxyl resin, amino resin, inorganic matter, polylysine, and aminosilane.

50. (new) The solution of metal-polymer chelates of Claim 42, wherein the solution of metal-polymer chelates further comprises a moisture absorbent combined with the metal-polymer chelates.

51. (new) The solution of metal-polymer chelates of Claim 49, wherein the polymer bridging

agent being a monosaccharide or polyvinylpyrrolidone having linear polymers.

52. (new) The solution of metal-polymer chelates of Claim 42, wherein the biological proteins are selected from a group consisting of a protein enzyme, a bacterium, and a cell.

53. (new) The solution of metal-polymer chelates of Claim 42, further comprising a silicic acid bearing molecule.

54. (new) The solution of metal-polymer chelates of Claim 42, further comprising:
a clay.

55. (new) The solution of metal-polymer chelates of Claim 42, further comprising a plastic polymer.

56. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used in an oxidation process so as to produce oxygen anions.

57. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used for a condensation having at least one oxidizing condensation.

58. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used in one of a hydroxypropylmethyl cellulose mimic of chitosan and a monosaccharide mimic of glucosamine.

59. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used in the cultivation and purification of the biological protein bearing biological molecules and their metabolites.

60. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used in a metal enzyme biocatalyst.

61. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used

in a disinfectant.

62. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used in a biological protein bearing biological molecules culture medium preservation system.

63. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used for dietary treatments and for health care applications.

64. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used for the production of chemical components of a plant.

65. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used for duplication of genes and carriers.

66. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used in a nano filtration system.

67. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used for the production of a nano material.

68. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used for one of the nano inorganic matter and nano ceramic and nano plastic and nano textile industries.

69. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used in one of the manufacture of biological liquid crystals and biological semiconductors and biochips.

70. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used for biological batteries.

71. (new) The solution of metal-polymer chelates of Claim 42, in which the solution is used for processing an oil product having at least one solvent liquid.

72. (new) The solution of metal-polymer chelates of Claim 49, wherein the metal-polymer

chelates produce at least one substance, the substance being selected from the group consisting of amino metal compound, an amino metal polymer, an amino nano metal polymer, an amino nano metal compound, a nano metal polymer, a nano metal compound, an amino biological protein bearing biological molecules, and a pure biological protein bearing biological molecules.